

Kelly Bushing 639' ASL
Ground Level 626' ASL

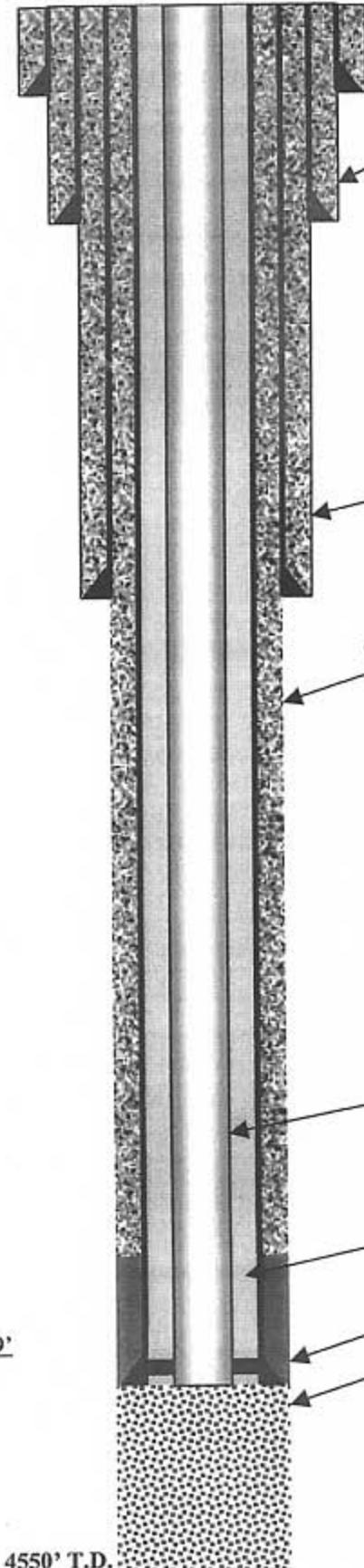
1000'

2000'

3000'

Injection Interval Top 3919'

4000'



20" hole to 178' with 16" 60 #/ft casing set at 177'. Annulus cemented to surface with 300 sacks Class "A" with 3% CaCl₂. Recovered 11 bbls of cement returns.

14-3/4" hole drilled to 642'. Opened to 17-1/2" below the 16" casing to 602'. 13-3/8 inch, 48 lb/ft, H-40, ST&C casing was run and set with a stab-in float shoe at 598 feet RKB. The annulus was cemented with 350 sacks of 65/35 Pozalin with 3% CaCl₂ followed by 200 sacks of Class "A" cement containing 3% CaCl₂. An additional 50 sacks of Class "A" Cement containing 3% CaCl₂ was pumped down the annulus between the 13-3/8" and 16" casing to fill to surface.

12-1/4" hole drilled to 1450'. 33 joints (1448") of 9-5/8", 36 #/ft, casing was set at 1444" with an insert float set at 1404". Cemented with 725 sacks of Class "A" cement containing 3% CaCl₂. Cement circulated to surface with 33 barrels recovered.

8-34" hole drilled to 4550' T.D., logged and filled with sand to 3960'. Long-string casing as follows: (1) Halliburton 7" float shoe at 3983', (2) Halliburton 7" float collar, (3) 5 jts. (97.39') of 7", 0.250" wall. Hastelloy C-276, STL casing with the top 10' Teflon coated for galvanic corrosion inhibition, (4) 7 jts. (315.43') of 7", 26 #/ft, K-55, (5) Halliburton 7" stage collar at 3565', and (6) 78 jts. (3563') of 7", 26 #/ft, K-55, new casing. 1st Stage: 500 gal. Mud flush, 500 gal. methanol, 1500 gal. gelled diesel fuel at 11 ppg, 686 gal. Halliburton EPSEAL at 12.5 lb/gal, displaced 1500 gal. gelled diesel fuel at 12.6 lb/gal and 116 barrels of drilling fluid. 2nd Stage: 310 sx of 50/50 Poz, 340 sx 50/50 Poz with microbond and 450 sx standard cement with microbond. 45 bbls circulated

Injection Tubing: 132 joints 4-1/2", TFP Red Box 2000, fiberglass reinforced plastic with 3 pup joints (10', 8', and 4'). Landed with 14,000 lbs tension.

Annulus filled with corrosion inhibited brine water

Injection Packer: Groundwater Protection Systems set at 3965'. Open hole completion in Eau Claire and Mt. Simon formations from 3983' to 4550'.

SUBSURFACE

HOUSTON, TX
SOUTH BEND, IN
BATON ROUGE, LA

FIGURE M-2

Environmental Disposal Systems

Well No. 2-12

DATED: 10/22/02	APPROVED BY: JB	JOB NO. 6005295
DRAWN BY: JB	CHECKED BY: NN	SCALE: N/A

Figure M-4
EDS 2-12
Wellhead

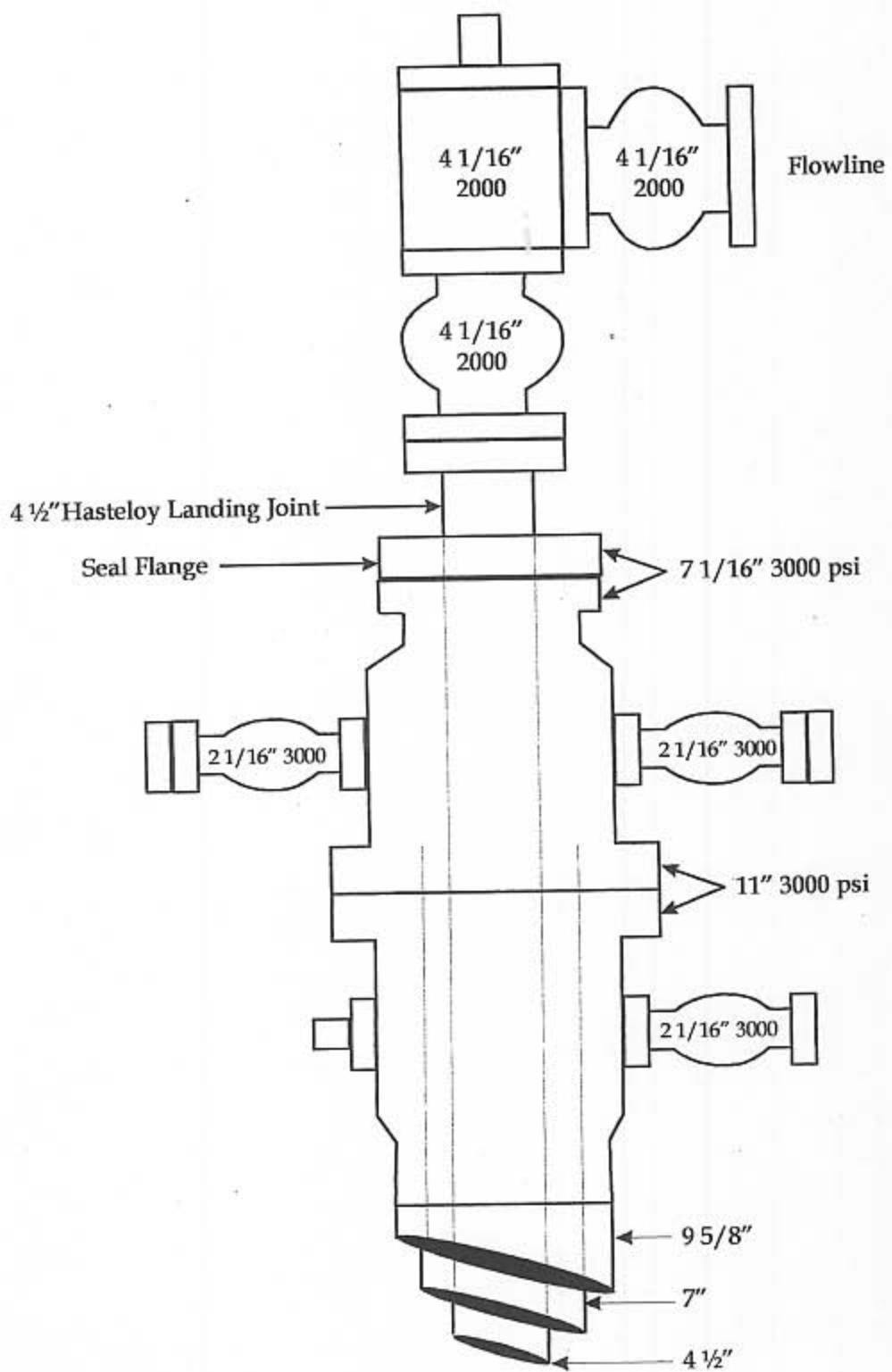
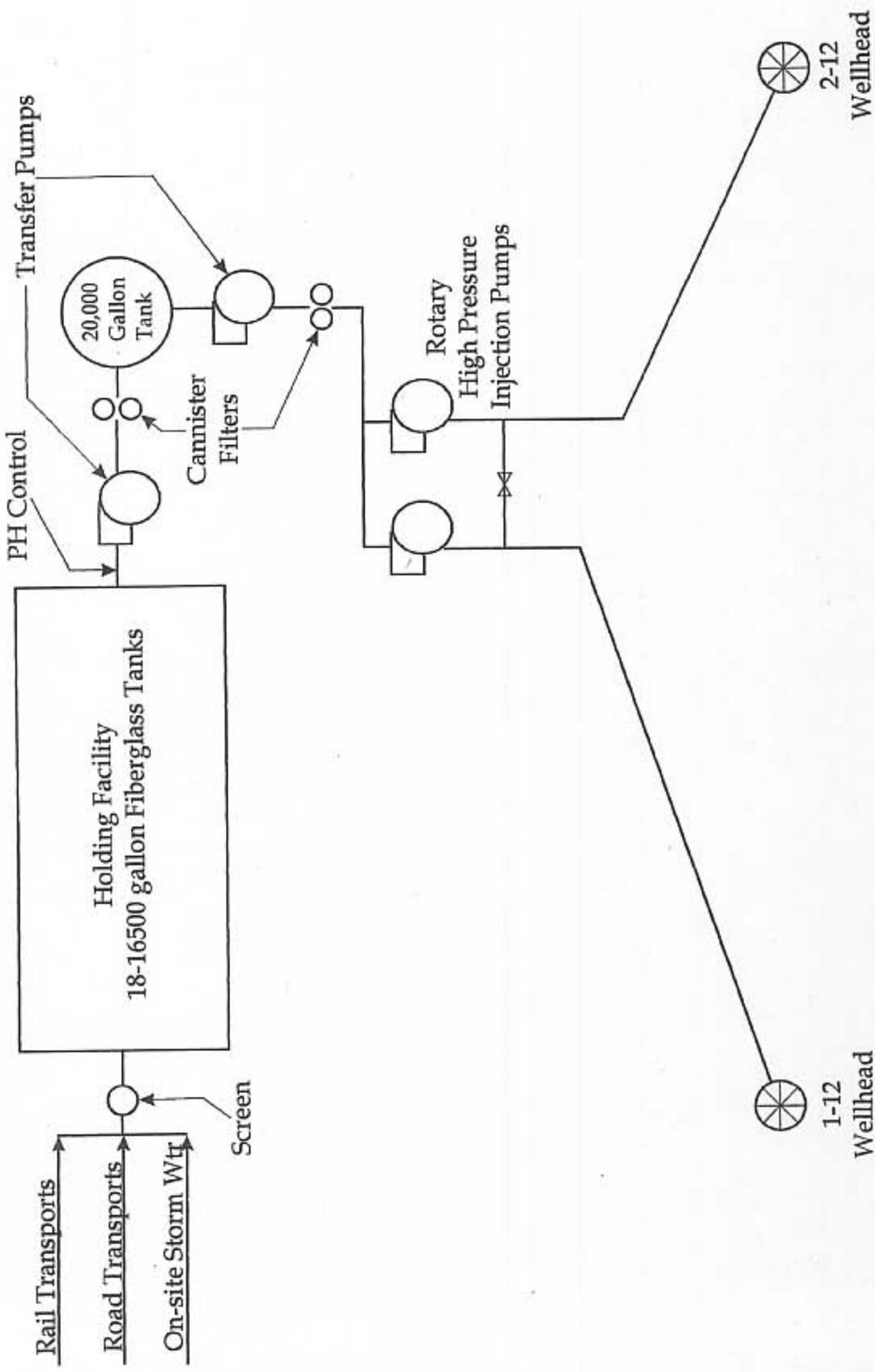


Figure K-1
EDS 1-12 & 2-12
Injection System



GENERAL WASTE CHARACTERISTICS

Source of Waste - Environmental Disposal Systems, Incorporated, (EDS) of Birmingham, Michigan, owns and will operate the proposed Class I facility in Romulus, Michigan. EDS plans to use this facility to dispose of hazardous and non-hazardous wastes as defined under RCRA, as specified at 40 C.F.R. 261.4.

Limitation - Only approved wastes, as specified in Attachment E of this permit, generated by clients of EDS may be injected into Well #2-12. All other fluids entering this borehole must be approved by the Director for purposes of well testing, stimulation, workovers, or as buffer fluids.

Waste Analysis Plan - This plan will be entered into this record and thus becomes an integral part of this permit.

Potential Waste Streams - At this time, no waste streams have been approved for disposal in the #2-12 well. Because this is a commercial well, it is not possible to list all potential waste streams that could be disposed of in the well. However, the likely hazardous waste streams will include:

- Diluted acid waste waters, such as used in metal cleaning and steel pickling operations, which would have a low pH and possibly an elevated level of heavy metals, such as chromium, cadmium, lead;
- Landfill leachates. Leachate may be from municipal and/or hazardous waste landfills; and
- Solvent-water mixtures, containing less than 10% solvents. These solvents would include, but not be limited to: tetrachloroethylene, trichloroethylene, methylene chloride, xylene, acetone, methanol, and carbon tetrachloride.

Attached are examples of the types of wastes that will likely be injected. These are not approved sources.

Non-hazardous waste streams would likely include similar waste streams as above except at non-hazardous levels, as well as various rinsates, waste waters from manufacturing processes, landfill leachates from municipal landfills, and brine from oil and gas operations (Class II well fluids).

LIST OF ALLOWED RCRA WASTE CODES

D002 D004 D005 D006 D007 D008 D009 D010 D011 D012 D013 D014 D015 D016 D017
D018 D019 D020 D021 D022 D023 D024 D025 D026 D027 D028 D029 D030 D031 D032
D033 D034 D035 D036 D037 D038 D039 D040 D041 D042 D043 F001 F002 F003 F004
F005 F006 F007 F008 F009 F010 F011 F012 F019 F020 F021 F022 F023 F024 F025
F026 F027 F028 F032 F034 F035 F037 F038 F039 K001 K002 K003 K004 K005 K006
K007 K008 K009 K010 K011 K013 K014 K015 K016 K017 K018 K019 K020 K021 K022
K023 K024 K025 K026 K027 K028 K029 K030 K031 K032 K033 K034 K035 K036 K037
K038 K039 K040 K041 K042 K043 K044 K045 K046 K047 K048 K049 K050 K051 K052
K060 K061 K062 K069 K071 K073 K083 K084 K085 K086 K087 K088 K093 K094 K095
K096 K097 K098 K099 K100 K101 K102 K103 K104 K105 K106 K107 K108 K109 K110
K111 K112 K113 K114 K115 K116 K117 K118 K123 K124 K125 K126 K131 K132 K136
K140 K141 K142 K143 K144 K145 K147 K148 K149 K150 K151 K156 K157 K158 K159
K160 K161 K169 K170 K171 K172 K173 K174 K175 K176 K177 K178 P001 P002 P003
P004 P005 P006 P007 P008 P009 P010 P011 P012 P013 P014 P015 P016 P017 P018
P020 P021 P022 P023 P024 P026 P027 P028 P029 P030 P031 P033 P034 P036 P037
P038 P039 P040 P041 P042 P043 P044 P045 P046 P047 P048 P049 P050 P051 P054
P056 P057 P058 P059 P060 P062 P063 P064 P065 P066 P067 P068 P069 P070 P071
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P093 P094 P095 P096 P097 P098 P099 P101 P102 P103 P104 P105 P106 P108 P109
P110 P111 P112 P113 P114 P115 P116 P118 P119 P120 P121 P122 P123 P127 P128
P185 P188 P189 P190 P191 P192 P194 P196 P197 P198 P199 P201 P202 P203 P204
P205 U001 U002 U003 U004 U005 U006 U007 U008 U009 U010 U011 U012 U014 U015
U016 U017 U018 U019 U020 U021 U022 U023 U024 U025 U026 U027 U028 U029 U030
U031 U032 U033 U034 U035 U036 U037 U038 U039 U041 U042 U043 U044 U045 U046
U047 U048 U049 U050 U051 U052 U053 U055 U056 U057 U058 U059 U060 U061 U062
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U079 U080 U081 U082 U083 U084 U085 U086 U087 U088 U089 U090 U091 U092 U093
U094 U095 U096 U097 U098 U099 U101 U102 U103 U105 U106 U107 U108 U109 U110
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U126 U127 U128 U129 U130 U131 U132 U133 U134 U135 U136 U137 U138 U139 U140
U141 U142 U143 U144 U145 U146 U147 U148 U149 U150 U151 U152 U153 U154 U155
U156 U157 U158 U159 U160 U161 U162 U163 U164 U165 U166 U167 U168 U169 U170
U171 U172 U173 U174 U176 U177 U178 U179 U180 U181 U182 U183 U184 U185 U186
U187 U188 U189 U190 U191 U192 U193 U194 U196 U197 U200 U201 U202 U203 U204
U205 U206 U207 U208 U209 U210 U211 U213 U214 U215 U216 U217 U218 U219 U220
U221 U222 U223 U225 U226 U227 U228 U234 U235 U236 U237 U238 U239 U240 U243
U244 U246 U247 U248 U249 U271 U277 U278 U279 U280 U328 U353 U359 U364 U365
U366 U367 U372 U373 U375 U376 U377 U378 U379 U381 U382 U383 U384 U385 U386
U387 U389 U390 U391 U392 U393 U394 U395 U396 U400 U401 U402 U403 U404 U407
U408 U409 U410 U411

ATTACHMENT E

Prohibitions - The permittee is prohibited from injecting wastes with either D001 (ignitable) or D003 (reactive) waste codes. In addition, no injectate containing PCB's at a concentration greater than or equal to 50 ppm shall be injected.

List of Presently Approved "Sources"

Presently approved "sources" of waste for disposal into the Well #2-12 injection well are identified below by identification number, name, location, and sampling frequency and analytical parameters. Future "sources", as approved by the Director, will be added to this Part III(E) of the permit.

NON-HAZARDOUS WASTE FLUIDS¹

"Source" ID Number	"Source" Name	Location (Address)	Waste Analysis Parameters	Waste Sampling Frequency
			Toxicity Characteristic list (see 40 C.F.R. §261.24)	Quarterly
			Fingerprint ²	Monthly

¹ Non-hazardous waste fluid sampling parameters and frequencies shall be determined on a case specific basis, with some sources tested at a lesser frequency such as annually. In addition, a single source may require different analytical parameters to be tested at different frequencies. Minimum fingerprinting analytical parameters are specified in Part III, Attachment A(G) of this permit.

² Minimum fingerprinting analytical parameters are specified in Part III, Attachment A(G) of this permit.

HAZARDOUS WASTE FLUIDS³

"Source" ID Number	"Source" Name	Location (Address)	Waste Analysis Parameters	Waste Sampling Frequency
			Toxicity Characteristic list (see 40 C.F.R. §261.24)	Quarterly
			Fingerprint ⁴	Per Load

³ Hazardous waste fluid sampling parameters and frequencies shall be determined on a case specific basis, with some sources tested at a lesser frequency such as annually. In addition, a single source may require different analytical parameters to be tested at different frequencies. Minimum fingerprinting analytical parameters are specified in Part III, Attachment A(G) of this permit.

⁴ Minimum fingerprinting analytical parameters are specified in Part III Attachment A(G) of this permit.

OILFIELD BRINES⁵

"Source" ID Number	Oilfield Name	Location (T-R-S)	Geologic Formation	Waste Sampling Frequency

⁵ All Oilfield brine wastes shall be analyzed for the parameters specified in Part III Attachment (A)(G) of this permit initially, and thereafter on an annual basis.